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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,846	12/15/2005	Kiyoshi Fujii	39088	2071

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EXAMINER	
BOR, HELENE CATHERINE	
ART UNIT	**PAPER NUMBER**
3768	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/20/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/560,846	FUJII, KIYOSHI	
	Examiner	Art Unit	
	Helene Bor	3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 December 2005* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/15/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "2" has been used to designate a rotatable sonic element and an arc-shaped sonic element. More appropriately, one of the elements should be labeled as "2a" to identify the functional relationship, but the structural differences. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in

upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
    (1) Field of the Invention.
    (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825)

3. The disclosure is objected to because of the following informalities:

a. Page 8, Line 7-11 – embodiment in reference to Figure 1a? Please clarify

b. Page 8, Line 14 – widow; --window--

Appropriate correction is required.

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Ultrasonic Diagnostic Apparatus for Controlling the Surface Temperature of a Probe.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 1 & 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The feature "a window" is not clearly defined in structure or function with relation to the claimed invention.

Claim Rejections - 35 USC § 102

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claim 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Ramamurthy et al. (US Patent No. 7,156,551 B2).

Claim 1: The rejection is made on the claim as best understood by the examiner. Ramamurthy'551 teaches an ultrasonic diagnostic apparatus that measures temperature dependent properties (Abstract). Ramamurthy'551 teaches measuring the temperature of the lens or window of an ultrasound probe as a function of changes in velocity of sound (Col. 1, Line 45-47). Ramamurthy'551 teaches a difference of velocity/attenuation at varying distances and that the changing ratio over time indicates temperature or temperature change (Col. 12, Line 47- Col. 13, Line 19). Ramamurthy'551 teaches calculating the temperature based on the thickness of the window/lens (t_1) and the propagation velocity (v_1) (Col. 10, Line 40-60). From the calculating, a temperature of the window is calculated (Col. 12, Line 65 – (Col. 11, Line 10). Ramamurthy'551 teaches the apparatus controlling ultrasonic wave output based on temperature calculated by the temperature calculation means (Col. 14, Line 36-45).

Claim 2: The rejection is made on the claim as best understood by the examiner. Ramamurthy'551 teaches an ultrasonic diagnostic apparatus that measures temperature dependent properties (Abstract). Ramamurthy'551 teaches measuring the temperature of the lens or window of an ultrasound probe as a function of changes in velocity of sound (Col. 1, Line 45-47). Ramamurthy'551 teaches a difference of velocity/attenuation at varying distances and that the changing ratio over time indicates temperature or temperature change (Col. 12, Line 47- Col. 13, Line 19). Ramamurthy'551 teaches calculating the temperature based on the thickness of the window/lens (t_1) and the propagation velocity (v_1) (Col. 10, Line 40-60). Ramamurthy'551 teaches the calculation of gel/tissue/water by using the curve fitting approach (Col. 12, Line 66 – Col. 13, Line 3) or by using a lower frequency excitation signal to provide a larger reflection from the lens or window surface (Col. 11, Line 63 – Col. 12, Line 3). From the calculating, a temperature of the window is calculated (Col. 12, Line 65 – (Col. 11, Line 10). Ramamurthy'551 teaches the apparatus controlling ultrasonic wave output based on temperature calculated by the temperature calculation means (Col. 14, Line 36-45).

Claim 3/1: Ramamurthy'551 teaches memory for storing the calculations and performing calibrations before a single temperature measurement or at the time of manufacture. Ramamurthy'551 also teaches the transducer communicating reference information/transducer properties to the ultrasound system for the purpose of identification and calibration (Col. 14, Line 46 – Col. 15, Line 10).

Claim 4/2: Ramamurthy'551 teaches memory for storing the calculations and performing calibrations before a single temperature measurement or at the time of manufacture. Ramamurthy'551 also teaches the transducer communicating reference information/transducer properties to the ultrasound system for the purpose of identification and calibration (Col. 14, Line 46 – Col. 15, Line 10).

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Umemura'042 et al. (US Patent No. 4,865,042).

Claim 1: The rejection is made on the claim as best understood by the examiner. Umemura'042 teaches measuring the intensity and the echo signal reflected to monitor the change in the acoustic impedance and in the sound velocity due to the temperature rise of the irradiation zone (Col. 7, Line 35-39). Umemura'042 teaches monitoring means [output] (Col. 6, Line 35-38) for temperature sensing and make it convenient to position the irradiation target [controlling ultrasonic wave output] (Col. 7, Line 11-20). Umemura'042 does not teach a "window" however since the structural and functional relationship of the "window" is unclear, the term is being interpreted as the access layer in the treated zone. Umemura'042 teaches using the signals indicating the depth and radius of the focal zone or "window" (Col. 7, Line 22-26).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. DiVincenzo, Costantino L. Electroacoustic method for nondestructively monitoring the internal temperature of objects, 09/04/1984. US 4469450 A.

b. Emery, Charles D. et al. System and method for transducer array cooling through forced convection, 09/29/2005. US 20050215892 A1.

c. Hayashi, Yasushi et al. Ultrasonic temperature measuring apparatus, 11/01/1994. US 5360268 A.

d. Kaplan, Shay. Passive sensor system using ultrasonic energy, 07/04/2000. US 6083165 A.

e. Kelly, Walter Patrick Jr. et al. Ultrasound signal processing electronics with active cooling, 10/05/1999. US 5961465 A.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene Bor whose telephone number is 571-272-2947. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eleni Mantis-Mercader can be reached on 571-272-4740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

hcb

ELENI MANTIS MERCADER
SUPERVISORY PATENT EXAMINER